



## AMENDMENT UNDER 37 C.F.R. §1.111 U.S. SERIAL NO. 09/424,300

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curvature of 10 to 60 times its diameter, a tensile strength TS (N/mm<sup>2</sup>) of the steel wire satisfies following formula,

TS≥2250-1450logD

wherein D is the diameter of the steel wire in mm and log means common logarithm,

and that repeated torsion value RT (turns/100D) of the steel wire, which is defined as sum of forward twisting and reverse twisting given until a crack is formed on a steel wire in a test wherein a steel wire is subjected to a repetition of forward twisting equivalent to 3 turns per 100D and reverse twisting to the original state with the axis of the steel wire kept straight, satisfies following formula;

 $log RT \ge 2-0.001 \{TS-(2250-1450log D)\}.$ 

2. (Amended) A steel wire according to claim 1, having tensile strength TS (N/mm²) satisfying following formula,

TS≥2750-1450logD.

5. (Amended) A method of manufacturing a steel wire having a diameter ranging from 0.10mm to 0.40mm obtained by subjecting a high-carbon steel wire material having a carbon content ranging from 0.70% to 0.90% in weight to heat treatment and wire drawing, characterized in;

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that tensile strength TS (N/mm<sup>2</sup>) of the steel wire satisfies following formula,

TS≥2250-1450logD

wherein D is the diameter of the steel wire in mm and log means common logarithm,

and that repeated torsion value RT (turns/100D) of the steel wire, which is defined as sum of forward twisting and reverse twisting given until a crack is formed on a steel wire in a test wherein a steel wire is subjected to a repetition of forward twisting equivalent to 3 turns per 100D and reverse twisting to the original state with the axis of the steel wire kept straight, satisfies following formula,

 $log RT \ge 2-0.001 \{TS-(2250-1450logD)\}$ 

which comprises a step of drawing a high-carbon steel wire material after heat treatment, characterized in that the step of drawing is carried out according to following conditions;

- ① reduction per die is set from  $(22.67 \ \epsilon+3)\%$  to 29% for dies at which  $\epsilon$  is less than 0.75,
- ② reduction per die is set from 20% to 29% for dies at which  $\varepsilon$  is not less than 0.75 and not more than 2.25,
- 3 reduction per die is set from  $(-5.56 \epsilon + 32.5)\%$  to  $(-6.22 \epsilon + 43)\%$  for dies at which  $\epsilon$  is more than 2.25 except for the final die,
  - 4 reduction per die is set from 4% to (-8.3  $\varepsilon$ +40.6)% for the final die, and





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wherein  $\epsilon$  is drawing strain expressed by a formula  $\epsilon = 2 ln(d_0/d)$ ,  $d_0$  is diameter of the steel wire material in mm before drawing, d is diameter of the steel wire in mm after passing through a die, and ln means natural logarithm.

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